

### **REMARKS**

Applicants have now had an opportunity to carefully consider the Examiner's comments set forth in the Office Action of 5/6/2004.

Reconsideration of the Application is requested.

#### **The Office Action**

Claims 1-23 remain in this application.

Claims 1-3, 12, 13, 22, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuda (U.S. Patent No. 5,677,776) in view of Knox (U.S. Patent No. 5,646,744) and further in view of Balanis (*Advanced Engineering Electromagnetics*, John Wiley & Sons, © 1989).

Claims 4-7, 11, 14-17, and 21 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuda in view of Knox, in view of Balanis, in further view of Bilgen ("Restoration of noisy Images Blurred by a Random Point Spread Function," *IEEE International Symposium on Circuits and Systems*, 1-34 May, 1990, vol. 1, pp. 759-762).

Claims 8-10, 19, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuda in view of Knox, in view of Balanis, and in further view of Numakura (U.S. Patent No. 5,371,616).

Claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsuda in view of Knox, in view of Balanis, in view of Bilgen, and in further view of Numakura.

#### **The Claims Distinguish over the References of Record**

**Claim 1** calls for determining scanned density for a front side of a document and effective absorbency data for a combined back of the first document and adjacent side(s) of a second document behind the first document from received image data. The present application contemplates gathering information from adjacent documents (such as adjacent pages in a book, which are physically behind the pages being copied when one scans the facing pages) which might also show through and be detected by the scanning device. The combination of Matsuda, Knox, and Balanis fails to teach or reasonably suggest the concept of determining density data or effective absorbency data. The principle of Knox, as described in detail in columns 5 and 6 of Knox, is the mitigation of show-through by scanning the

back side of a document and comparing it to a scanned image of the front side of the document. Knox assumes that low-contrast information on the front side scan that matches high-contrast information on the back side scan is show-through information. By comparing front and back sides of a document, Knox is able to mitigate some of the show-through. Knox, however, does not determine the density or the absorbency of the sheet. Additionally, as Knox feeds and scans only single sheets, there are no adjacent sheets behind the sheet being scanned, so Knox necessarily does not determine density or absorbency data of adjacent sheets. Knox does not need to determine absorbencies because the show-through mitigation of Knox assumes there will be show-through, and compares front and back sides of the document without ever contemplating the properties of the paper on which the images are printed. The present application, in contrast, determines the density and the absorbency of the paper on which the images are printed, and then calculates how much show-through is present without scanning a reverse side of the document. Claim 1 distinguishes over the cited combination because the cited combination does not contemplate gathering information about the density or absorbency of the paper on which the images are printed.

The present application contemplates a method and apparatus where a user is able to lay a book or other multiple-sheet work on the apparatus and scan the facing page(s), the apparatus automatically determining and eliminating the show through. Knox teaches against this core concept at col.5 lines 63-67. Knox states that there would be no way of determining show through from only scanning the front side of the page. The present application contemplates just that. Therefore, as Knox states that there would be no way to do what the present application contemplates, the combination of Matsuda, Knox, and Balanis cannot teach the present invention.

Further, claim 1 calls for determining show-through compensated density data. As previously demonstrated, the combination of Matsuda, Knox, and Balanis does not determine initial density data. Resultantly, the combination would have no use or basis for finding compensated density data. For the foregoing reasons, it is respectfully submitted that **claim 1**, and **claims 2-11** dependent therefrom distinguish patentably and unobviously over the references of record.

Similarly, **claim 12** calls for a show-through compensation device that determines scanned density data and approximate absorbency data for front side

images, back side show through images, and adjacent side show through images behind the front and back side images. The device also determines show-through compensated density data. As stated above, the combination of Matsuda, Knox, and Balanis does not teach the method steps, so it logically follows that the cited combination does not teach a show-through compensation device that performs those steps. It is therefore respectfully submitted that **claim 12** and **claims 13-22** dependent therefrom distinguish patentably and unobviously over the references of record.

**Claim 23** calls for basing show-through compensation on a linearized relationship between scanned data of front, back, and adjacent side images in density space. As previously stated, the combination of Matsuda, Knox, and Balanis fails to teach scanning the density information of facing or adjacent pages. It is therefore respectfully submitted that **claim 23** distinguishes patentably and unobviously over the references of record.

#### CONCLUSION

For the reasons detailed above, it is submitted all claims remaining in the application (Claims 1-23) are now in condition for allowance. The foregoing comments do not require unnecessary additional search or examination.

In the event the Examiner considers personal contact advantageous to the disposition of this case, he/she is hereby authorized to call Pat Roche, at Telephone Number (216) 861-5582.

Respectfully submitted,

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